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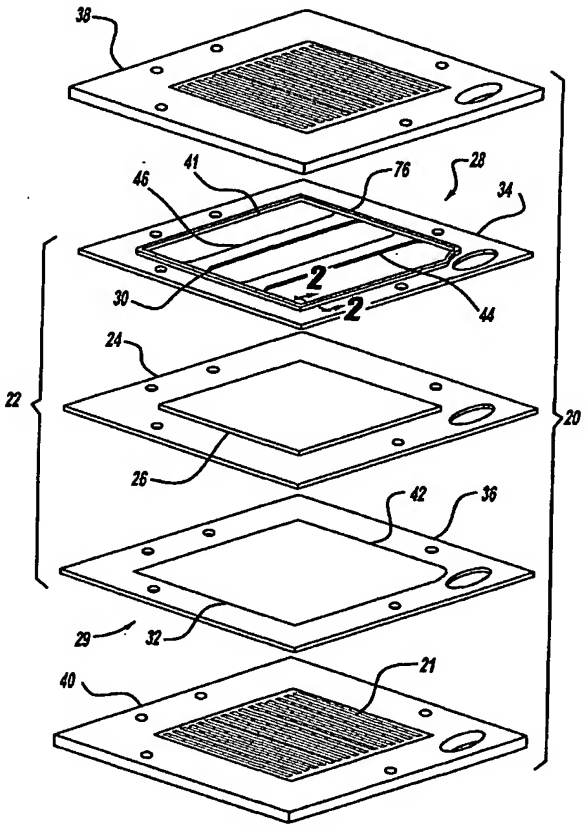
(54) Title: FUEL CELL SEAL WITH INTEGRAL BRIDGE



(57) Abstract: The invention is drawn to a gasket (34) for use in an individual fuel cell (20). The gasket (34) includes at lest one generally rigid bridge (44) or (46) that extends across the fluid flow channels in adjacent separator plates (38) and (40). The bridge (44) or (46) assures that the fluid flow channels are not blocked or restricted in the cell (20). Each bridge (44) or (46) may be integral with its corresponding gasket (34). The gasket (34) may be a multi-piece gasket with a carrier material having an elastrometric seal portion (74) secured to it.

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Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

— *of inventorship (Rule 4.17(iv)) for US only*

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— *with amended claims*

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

AMENDED CLAIMS

[received by the International Bureau on 23 August 2004 (23.08.04)
original claims 1-11 have been cancelled, 12-17 have been added.]

CLAIMS

What is claimed is:

1-11. Cancel.

12. A sealing arrangement for a fuel cell , comprising:

a membrane electrode assembly having a first side and a second side;

a gas diffusion layer disposed on at least one of said first and second sides of said membrane electrode assembly;

a separator plate including a first set of flow channels, said separator plate being disposed next to said gas diffusion layer; and

a gasket disposed between said membrane electrode assembly and said separator plate and having an outer perimeter portion defining an opening which receives said gas diffusion layer, said gasket including at least one bridge portion extending across said opening and between said gasket and said separator plate.

13. The sealing arrangement according to claim 12, wherein said at least one bridge portion includes a rigid insert.

14. The sealing arrangement according to claim 12, wherein said at least one bridge portion is integrally formed with said outer perimeter portion.

15. The sealing arrangement according to claim 12, wherein said gasket includes a carrier layer and an elastic seal layer mounted thereto.

16. The sealing arrangement according to claim 15, wherein said carrier is adhesively bonded to said membrane electrode assembly.

17. The sealing arrangement according to claim 12, wherein said gasket includes an elastomeric sealing bead engaging said separator plate.